UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,623	07/07/2003	Arnold I. Klayman	SRSLABS.053C3	7854

20995 7590 02/18/2009

KNOBBE MARTENS OLSON & BEAR LLP
2040 MAIN STREET
FOURTEENTH FLOOR
IRVINE, CA 92614

EXAMINER	
LEE, PING	

ART UNIT	PAPER NUMBER
2614	

NOTIFICATION DATE	DELIVERY MODE
02/18/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com
eOAPilot@kmob.com

Office Action Summary	Application No.	Applicant(s)	
	10/614,623	KLAYMAN, ARNOLD I.	
	Examiner	Art Unit	
	Ping Lee	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 November 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,10-15,17-22 and 27-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,10-15,17-22 and 27-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1-8, 10-15, 17-22, 27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Klayman (US 4,748,669) in view of Bauer (US 5,832,438).

Regarding claims 17-22 and 27-31, Klayman shows, in Fig. 2, an audio enhancement system comprising a first input and a second input (L and R respectively) wherein the first and second inputs comprise first and second audio information with bass components (although not explicitly shown, the original signals inherently including all the components including bass, mid and high); a difference circuit (11), an equalizer (18, 19) and a summing circuit (25). Klayman fails to show the difference circuit wherein at least a portion of the bass components in the first ad second inputs are removed from the difference information.

As shown in Fig. 5A of Klayman, the frequency response of the equalization has a maximum gain for very low frequency (20 Hz). One skilled in the art would have expected that the speaker, especially small speaker, would be overly driven at 20 Hz if the amplification is at its maximum. Bauer teaches a more reasonable and realistic equalization using a DSP for improving sound quality produced by small speakers. As shown in Fig. 3, the equalization is at maximum between 100 and 200 Hz and then the gain decreases as the frequency decreases after the maximum gain frequency. See

also col. 6, lines 5-44. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention was made with both references before him/her to modify Klayman by removing at least a portion of the bass components in the first and second inputs, so the equalization is performed and having the maximum gain not at the ultra low frequency, but between 100-200 Hz and decreasing the gain as the frequency decreasing from this maximum gain frequency in order to improve the sound quality generated from small and inexpensive speakers.

By combining the spectrally shaped difference information with Lin or Rin, the output signals comprise at least a portion of the bass components (e.g., Lin including bass components from 30 Hz to 100 Hz) and the spectrally shaped difference information.

Regarding claims 1-8 and 10-15, Klayman fails to show the first and second high pass filters. Klayman teaches that the sound above 30 Hz is going to be equalized (col. 9, lines 47-48 and Fig. 5A) and the maximum gain also applied to frequency below 100 Hz. As discussed above, Bauer teaches that, for small speakers, the maximum gain should be between 100-200 Hz and the gain should decrease below this maximum gain frequency as the frequency decreasing. It was well known in the art that high pass filters, a simple device, could be used to limit the signal in terms of frequency to be applied to the equalizer. Examiner takes Official Notice that this feature is notoriously well known in the art. By limiting the signal applied to the equalizer that having maximum gain between 100-200 Hz, frequency lower than this range would not be boosted. Thus, it would have been obvious to one of ordinary skill in the art to modify

Klayman in view of Bauer by using high pass filters to limit the bandwidth that a signal is to be emphasized in order to improve sound quality generated from small speakers.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 27-31 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 11/777,127 in view of Bauer.

Claim 1 of application '127 fails to specify the frequency response at a third set of frequencies and a fourth set of frequencies. Bauer teaches that, for small speakers, the equalization should be performed as shown in Fig. 3 with first, second, third and fourth set of frequencies being illustrated as their corresponding boosting or attenuating.

Thus, it would have been obvious to one of ordinary skill in the art to modify claim 1 of application '127 in view of Bauer to modify the equalization by including the adjustment for the third and fourth set of frequencies in order to improve the sound generated from small speakers.

This is a provisional obviousness-type double patenting rejection.

Response to Arguments

5. Applicant's arguments filed 11/14/08 have been fully considered but they are not persuasive.

Applicant argued that none of the references remove bass components from the audio information on the first and second inputs, uniquely spectrally shape the difference information without the bass components, and then combine the spectrally shaped difference information with at least a portion of the bass components that were removed from the first and second inputs.

This is not persuasive. First of all, the rejection is based on Klayman in view of Bauer, not based on a single reference alone as alleged by applicant. Bauer teaches that the ultra low frequency should not be amplified in the equalizer when the output signal is being applied to a small and an inexpensive speaker. See Fig. 3 of Bauer. Bauer suggests that any ultra low frequency lower than 100 Hz should not be amplified in the equalizer. Thus, one skilled in the art would have been motivated to modify Klayman in view of Bauer by removing at least a portion of bass component and limiting the signal to be applied to equalizer. Although the spectral shaped signal does not

include signal having component below 100 Hz (after modification in view of Bauer), the Lin and Rin includes the component below 100 Hz. Therefore, the output from the summing circuit comprises at least a portion of the bass component and the spectral shaped signal.

Since applicant does not amend the claims to overcome Klayman and Bauer, the provisional double patenting is maintained.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ping Lee whose telephone number is 571-272-7522. The examiner can normally be reached on Wednesday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian C. Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ping Lee/
Primary Examiner, Art Unit 2614

pwl